WA-Trans Project Risk Assessment
As of January 8, 2003

Executive Summary

A risk assessment is a key component of any set of project management deliverables for a project. It is particularly critical for large and potentially complex projects. The Washington Transportation Framework for GIS Project (WA-Trans) is particularly complex for a variety of reasons. Those include the cross-jurisdictional, cross-business functional nature of the project and all of the political, cultural and related risks. Additionally, at this time, the project is largely unfunded. A project manager is the only funded element. Volunteers from various organizations statewide are handling the rest. That adds some risks in and of itself. Additionally there are technical issues to be resolved. Several other states and the federal government are working on these issues and a major mitigation strategy is to examine the lessons they have learned.

In regard to this risk assessment, risks were evaluated in various categories. Risks were defined in terms of risk conditions and risk consequences. A single risk is a combination of a condition and consequence. The same risk condition can have several possible consequences. The risk exposure was evaluated in terms of the probability of the risk occurring and the impact to the project should that risk occur. Probability was quantified as follows: 1 – Impossible, 2 – Improbable, 3 – Probable, 4 – Frequent. Impact was evaluated in this way: 1 - Negligible, 2 – Marginal, 3 – Critical, 4 – Catastrophic. These values were multiplied and the combination determined the risk exposure.

Risk Categories and High Exposure Risks

A listing of the highest risks by categories follows. Summaries of possible mitigation strategies are outlined.

Funding and Governmental Authorization

- The project doesn't get funding so the project fails to make progress on deliverables. Mitigation strategies include pursuing grant opportunities and all related efforts including establishing a grant strike team, setting up schedules and project plans for various funding situations and resource availabilities, pursuing the use of paid university students to perform the actual technical work to save costs, selling the project to the legislature as a cost saving effort based on evaluation of money already being spent to pursue similar individual data gathering efforts.
- Lack of education or knowledge regarding framework concept or GIS leads to an unwillingness or inability for various partners to participate and business needs are not identified. Mitigation strategies include developing a communication plan and presentation materials that will educate participants about WA-Trans and continuing to document different business needs so the project maintains information about what is needed by participants.
- Funding and data agreements and architecture don't include maintenance costs and plans so framework data and data agreements become obsolete and there is no responsible entity for maintenance identified. Mitigation strategies include making maintenance a requirement of the data sharing agreement, including maintenance in any funding requests, including maintenance in pilot projects so costs and impacts can be accurately tracked, communicated and evaluated.

Limited Partnership Participation in Development and Maintenance of Project

- New partners joining the project after project plan is in place lead to business drivers and priorities changing. Mitigation strategies include gathering business needs for new partners and determining the commonalities with those already gathered and developing change management processes for handling scope changes once business requirements and prioritization is complete.
- Conflicts exist with security levels needed to meet identified business needs so some partners refuse to provide data. Mitigation strategies include gathering security needs as part of the requirements process and allowing some level of security of some data where needed, provide a "public domain" version and other versions, attribution or layers for some specific users.

Private-Public Partnership Issues

- Conflicts related to the use of public versus private data are complex or impossible. In the public sector, many partners are subject to public disclosure laws and share data freely, while other partners, who get data from private organizations (utilities, private forest land owners), are prohibited from sharing that data with

others. Mitigation strategies include involving private data providers in the planning process to assist with developing strategies for handling data and data sharing requests.

Network Infrastructure and Technology Shortcomings

- Bandwidth doesn't support data exchange so data transfer if viewed as too slow by framework users. Mitigation strategies include pilot testing of the largest most complex data sets to troubleshoot packet size and number of packets transferred or contracting out hosting of WA-Trans with minimum specifications for speed and bandwidth.

Compatibility of Data Standards, boundaries and Deliverable Timetables

- Development of the base map with attribution is too slow for some business needs identified so funding and resource opportunities are lost. Mitigation strategies include attaching funding requirements to meet urgent needs, using a pilot to show the value of providing data to WA-Trans, and considering a scaled down version for the first release with a release schedule for additional attribution.

Facilitating Development of the Most Useful Applications

- The project is unable to schedule key resources at the needed time so the project schedule is not followed. Mitigation strategies include communicating the cost of changes to partners on a regular basis, having alternatives planned for each resource and using change management processes for dealing with resources losses.
- The business needs identified by funding organizations are too complex for times available to develop the first release so funding opportunities are lost. Mitigation strategies include providing an option for the "purchase" (RFQ) of data for short-term use; performing continuous risk management, including assessing the risks of each requirement to meeting a business needs; adding a contingency factor in the budget and schedule for risk assessed on complex business needs; or providing an initial release of WA-Trans that is a starting point for organizations to adapt and refine to meet their specific needs.

Future Plans and Uses for Risk Assessment

This risk assessment is a living document. It will be updated as new risks are discovered, others are successfully mitigated, or the likelihood for specific risks to occur passes without difficulty. The WA-Trans Steering Committee and Partners Group are evaluating this document to provide more detailed input to make sure it represents risks across the life of the project.

WA-Trans Project Risk Assessment
As of January 8, 2003

Introduction

A risk assessment is a key component of a risk management plan. A well-done risk assessment will provide a timeline for monitoring specific risks and mitigation strategies that can be implemented when a particular risk is "triggered". The risk assessment for WA-Trans was begun very early in the project and some of the mitigation strategies are already in place and working as anticipated. Because of the continuing nature of the risk management throughout the lifecycle of a project all risks that seem possible at any point during the project have been identified. However new risks will appear and this document should be updated, at a minimum, before each phase is implemented, and very likely more often.

Risks are defined within specific categories to facilitate grouping and organization and to illustrate linkages between risks and mitigations. This document defines risks as a combination of "*risk conditions*" and "*risk consequences*". A particular risk condition may have multiple risk consequences. That is illustrated throughout this document. Sometimes a risk consequence becomes a risk condition for other consequences. They interdependent nature of risks means there may be multiple similar risks documented. Additionally, one mitigation strategy may work for several different but related risks. Each risk category is defined and followed by the risks that fall under that category.

For each risk combination an impact is defined. *Impact* is defined as the "loss or effect on the project as the risk occurs". *Probability* is defined as "the likelihood the risk will occur". The *timeframe* is defined as "the period when action is required in order to mitigate the risk" Timeframe is referred to as "Time" in this risk assessment. *Risk exposure* (RE) is defined as an attribute of risk that is derived from impact and probability using the following relationship: "RE = Prob(UO) x Loss(UO) where Prob(UO) is the probability of an unsatisfactory outcome (UO) or risk, and Loss(UO) is the loss to the parties affected if the outcome is unsatisfactory (i.e., the risk occurs)." In this case probability was assigned based on whether a risk had already occurred or seemed to be likely to occur. These are subjective judgments, which will benefit from input from all the partners.

The following table illustrates how the relationship between impact, probability and risk exposure were evaluated for this risk assessment both qualitatively and quantitatively:

	Probability			
Impact	**Frequent (4)**	**Probable (3)**	**Improbable (2)**	**Impossible (1)**
Catastrophic (4)	High (16)	High (12)	Moderate (8)	None (4)
Critical (3)	High (12)	Moderate (9)	Moderate (6)	None (3)
Marginal (2)	Moderate (8)	Moderate (6)	Low (4)	None (2)
Negligible (1)	Moderate (4)	Low (3)	Low (2)	None (1)

i

This document can be used to assess risks and provide guidance for recognizing approaching risks. Plans made early in the project allow for the implementation of contingencies and project structures that support specific mitigation strategies throughout the project and for the use of continuous risk management as a major project management tool. The charter, work plan, budget and communication plan should all be coordinated with the risk assessment to support the use of continuous risk management.

To manage and track risks this document uses **bold letters** when a mitigation strategy is underway and comments following in *italics* to explain the mitigation strategy status. Periodically the steering committee will change a risk probability and or impact based upon the mitigation strategy status.

.

WA-Trans Project Risk Assessment
As of March 5, 2003

I. **Risk Category:** ***Funding and Governmental Authorization*** - Funding is the key for the successful implementation and maintenance of WA-Trans. Various levels of government must authorize funding and related resources for the project to be successful.

Risk #	*Risk Condition*	*Risk Consequence*		*Impact*	*Probability*	*Exposure*	*Time*	*Mitigation Strategy*
A.	The project doesn't get funding	1.	The project fails to make progress on deliverables.	4	4	High	P1, P2, P3	• **Pursue grant opportunities where possible** (I-A1) (*A grant request was made to FEMA and FHWA, Grant Strike team being formed)*, • Get administrative help with grant writing skills (I-A1), • **Set up schedule with associated time constraints and risks for: an all volunteer project, a limited budget project, and a higher budget project, based on a target completion date** (I-A1), (*schedule established for Phase I assumes no budget*), • Pursue use of paid university students to do much of work at lower costs (I-A1), • Find a secondary facilitator (I-A2), • Leverage existing project funding by identifying areas where WA-Trans will save and use potential savings to pay for WA-Trans (I-A), • Sell the project directly to the legislature as a cross-agency, statewide project (I-A), • Reduce the project expectations and scope to lower the cost (I-A), • **Document process well and be ready for turnover** (I-A2) (*Project continually documented*), • **Develop a "Grant Strike Team" to research grant opportunities, write grant proposals and follow through the grant process** (I-A), (*Subcommittee being formed, lead by Lisa Stuebing*), • Develop methods for getting vertical use of data, find opportunities for state agencies to use local data, where currently they aren't, pilot those opportunities and market the value of local data, to create a demand which will facilitate getting funding (I-A).
		2.	WSDOT pulls project resources.	4	2	Mod	P2, P3	
B.	WSDOT decides not to support the effort	1.	Project Manager is pulled from the project.	4	2	Mod	P2, P3	• Find a secondary facilitator (I-B1),

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

WA-Trans Project Risk Assessment
As of March 5, 2003

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
		2.	There is no central focal point for the project.	3	1	None	P2, P3	• **Document process well and be ready for turnover** (I-B1), (*Project continually documented*), • Determine who has most benefit-cost remaining and ask them to lead the effort (I-B1, I-B2), • **Continuously reevaluate needs and commitment while still participating and working on the project** (I-B)(*Steering Committee and Partners continually provide input*), • Document cost for WSDOT of not participating and cost for not leading effort (I-B).
		3.	The project does not meet internal WSDOT business needs.	3	2	Mod	P2, P3	
C.	Lack of education or knowledge regarding framework concept or GIS	1.	Unwillingness or inability to participate	4	4	High	P1, P2, P3	• **Develop a communication plan and presentation materials that will educate participants about WA-Trans** (I-C1, I-C3), (*Presentation materials developed*), • **Develop and continue to refine estimates of scope, cost and schedule with assumptions documented and communicate those whenever possible** (I-C2), (*A couple of estimates have been developed based on a couple of different assumptions*), • **Continue to document different business needs so the project maintains information about what is needed by participants** (I-C3), (*Business needs are still being documented but in a less proactive manner*), • **Use meetings as opportunities to document business needs and to educate potential participants about the WA-Trans** (I-C), (*business documentation meetings have provided a key opportunity for educating and successfully soliciting participation*), • Develop change management process for handling scope changes once business requirements and prioritization are complete (I-C3), • Use alternative sources for data including ortho-photos to compensate for missing data (I-C5).
		2.	Unrealistic expectations developed regarding project deliverables	3	3	Mod	P2, P3	
		3.	Business needs not identified	4	4	High	P2, P3	
		4.	Framework is not used	4	2	Mod	P-P3	
		5.	Data needed for a jurisdiction not made available	4	2	Mod	P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

WA-Trans Project Risk Assessment
As of March 5, 2003

Risk #	*Risk Condition*	*Risk Consequence*		*Impact*	*Probability*	*Exposure*	*Time*	*Mitigation Strategy*
D.	Large upfront investment is required in infrastructure.	1.	Requires a long time to "pay off".	4	3	High	P2, P3	• Develop cost-benefit analysis, which show payoff rate and focus on business needs that have the highest early payoff first (I-D1). • Plan for a slow paced implementation with lower expectations meeting a set of business needs which required the lowest cost implementation, building the "budget model"(I-D2), • Develop a pilot as a "proof of concept" which will sell the concept to the largest group of potential users with the most money to spend on supporting a wider implementation (I-D).
		2.	With current funding realities, funding is very difficult to get.	3	4	High	P1, P2, P3	
E.	Funding, data agreements and architecture don't include maintenance costs and plans.	1.	Framework data and data agreements becomes obsolete.	4	4	High	P-P3	• Make maintenance a requirement of any data sharing agreement (I-E1, I-E2, I-E3), • **Include maintenance costs in any funding requests** (I-E), (*Both decision package request and grant requests have explicitly stated maintenance costs*), • Include maintenance as part of any pilot efforts so costs and impacts can be accurately tracked, communicated and evaluated (I-E), • Include a regular QA cycle as part of WA-Trans maintenance to check for quality of data and maintenance over time (I-E), • Update WA-Trans using orthophotos and other data sources when maintenance can't be relied upon (I-E), • Begin implementation of Ken Dueker's proposal for long-term maintenance of WA-Trans.[ii]
		2.	There is no responsible entity for maintenance identified.	4	4	High	P3	
		3.	Framework is not used.	4	2	Mod	P3	
		4.	Some data will not work with the framework over time.	4	2	Mod	P-P3	
F.	Inadequate cooperation across jurisdictional and political boundaries	1.	Data is missing	4	3	High	P3	• **Use the steering committee to minimize the cooperation complexity and coordinate the effort** (I-F), (*Steering Committee formed and active and making decisions*), • Develop software algorithms to facilitate data integration (I-F3),
		2.	The framework is not used	4	2	Mod	P-P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

WA-Trans Project Risk Assessment
As of March 5, 2003

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
		3.	Data does not "connect"	3	2	Mod	P-P3	• Develop agreements and funding for supporting long term integration (I-F) • Provide option for "purchase" (RFQ) of data for short-term use (I-F1), • Use alternate sources of data, including orthophotos, to compensate for missing data (I-F1), • **Show examples of where concerns cross boundaries, natural or man made disasters, freight mobility issues, and various other reasons why multiple jurisdictions should become involved and cooperate** (I-F), (*Many business needs focus on these things).*

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

WA-Trans Project Risk Assessment
As of March 5, 2003

II. **Risk Category:** ***Limited Partnership Participation in Development, Implementation, and Maintenance of Project*** **–**Broad partnership participation and buy-in is the key to creating a usable product and having support and data for maintenance.

Risk #	*Risk Condition*	*Risk Consequence*		*Impact*	*Probability*	*Exposure*	*Time*	*Mitigation Strategy*
A.	The project doesn't get key partner executive understanding, support, sponsorship	1.	Partners don't participate.	4	3	High	P1	• **Communication appeals to executives** (II-A), (*Set up a meeting with WSDOT Chief of Staff*), • Cost/Benefit analysis showing value of participation targeted at different government levels, different business functions (II-A), • **Create summaries of business needs targeted at different government levels, different business functions** (II-A), (*There are presentations targeted at different levels and groups, and some summaries*) • Complete pilot to demonstrate usefulness (II-A), • Use pilot to show cost and resources needed specifically (II-A), • **Continue to refine a broad-based business needs assessment including new partners and user groups as discovered** (II-A), (*Business needs definition is an ongoing process, but is now being handled in a less proactive manner*), • Find alternate data sources such as purchase or use from other groups or data extraction from ortho-photos. Include cost of such measures in plans and budgets (II-A 5).
		2.	Partners don't provide resources.	3	3	Mod	P1, P2, P3	
		3.	Partner organization's business needs are not identified.	3	3	Mod	P1	
		4.	Partners don't plan and identify funding opportunities and financial incentives.	4	3	High	P1, P2, P3	
		5.	Partners' data is not available to the framework.	3	3	Mod	P2, P3	
B.	Funding, data agreements and architecture don't include maintenance costs and plans.	1.	Framework data and data agreements become obsolete.	4	4	High	P-P3	• Make maintenance a requirement of any data sharing agreement (II-B1, II-B2, II-B3), • **Include maintenance costs in any funding requests** (II-B),), (*Both decision package requests and grant requests have explicitly stated maintenance costs*), • Include maintenance as part of any pilot efforts so costs and impacts can be accurately tracked, communicated and evaluated
		2.	No responsible entity has been identified for maintenance.	4	4	High	P3	
		3.	Framework is not used.	4	2	Mod	P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

WA-Trans Project Risk Assessment
As of March 5, 2003

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
		4.	Some data will not work with the framework over time.	4	2	Mod	P-P3	impacts can be accurately tracked, communicated and evaluated (II-B), • Include a regular QA cycle as part of WA-Trans maintenance to check for quality of data and maintenance over time (II-B), • Update WA-Trans using orthophotos and other sources when maintenance can't be relied upon (II-B), • Begin implementation of Ken Dueker's proposal for long-term maintenance of WA-Trans.[iii] (II-B)
C.	Formal data agreements are not established with data providers	1.	Framework data becomes out of date.	4	3	High	P-P3	• Require completion of a formal data sharing agreement before utilizing data (II-C), • Include maintenance plans in front end plans for WA-Trans and facilitate them throughout (II-C), • Include a regular QA cycle as part of WA-Trans maintenance to check quality of data and maintenance over time (II-C1a, II-C2), • Update WA-Trans using ortho-photos and other sources when maintenance can't be relied upon (II-C) • **Include the cost of developing data sharing agreements in all budgets and schedules** (II-C) (*These costs are included in the current work plans*).
		2.	Framework data has less credibility because data changes are not managed.	4	2	Mod	P-P3	
		3.	Framework is not used.	4	2	Mod	P-P3	
D.	Regular communication is inadequate or through mediums not easily accessible to partners	1.	Partners don't participate in project, meetings, or major decisions affecting them.	4	2	Mod	P1, P2, P3	• Develop a complete communication plan with different means of communicating with partners and potential partners (II-D), • **Develop cost, resource and time assessments and publicize them** (II-D1, II-D2), (*Cost and resource estimates have been done using a couple of different assumptions*),
		2.	Partners don't provide funding and resources.	4	2	Mod	P1, P2, P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

Risk #	*Risk Condition*	*Risk Consequence*		*Impact*	*Probability*	*Exposure*	*Time*	*Mitigation Strategy*
		3.	Business needs aren't identified or are identified in a non-timely way.	4	3	High	P1, P2, P3	*using a couple of different assumptions*), • Develop cost benefit analysis to justify participation and funding (II-D1, II-D2), • Allow sources of funding and resources greater say in prioritization process (II-D2), • **Continue to document different business needs so the project maintains information about what is needed by participants** (II-D3), (*Business needs definition is an ongoing process, but is now being handled in a less proactive manner*).
E.	Participation by partners dwindling over time	1.	Resources and funding are not made available for the project	3	3	Mod	P1, P2, P3	• **Provide processes for bringing new steering committee members in as those who can't continue to commit the time leave** (II-E), (*Rules of engagement are documented and in an informal way this process is in place*), • Develop a comprehensive communication plan which defines keeping partners engaged including regular communications and interpersonal efforts (II-E), • **Have each steering committee member designate an alternate who will serve in their place when necessary** (II-E), (*Several steering committee members do have alternates*), • Use alternate sources of data, including orthophotos, to compensate for missing data (II-E2). • **As people stop participating make contact with them and find out why. If possible address those issues so that they or someone else within their organizations reengage** (II-E), (*As time permits this is being done*).
		2.	Data needed for the framework is not made available	4	2	Mod	P3	
		3.	Competing efforts to develop a framework are established.	4	2	Mod	P3	
F.	New partners join the project after project plan is in place	1.	Scope changes are required	3	2	Mod	P2, P3	• **Develop transition processes for introducing new partners to the process** (II-F), (*Rules of engagement are documented and in an informal way this process is in place*), • **Gather business needs for new partners and determine the**
		2.	Business drivers and priorities change	3	4	High	P2, P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
		3.	Time is spent revisiting decisions reached earlier	4	2	Mod	P1, P2, P3	**commonalities with those already gathered** (II-F2), (*Business needs for all identified partners have been gathered, only missing those that have not been identified*),
		4.	The schedule and budget are exceeded	4	3	High	P1, P2, P3	• Develop change management process for handling scope changes once initial business requirements and prioritization are complete (II-F1, II-F2), • **Don't allow revisiting issues to occur unless the majority of the *steering committee* determines it is necessary to do so** (II-F3, II-F4), (*This is a "rule of engagement" of the steering committee which all have agreed to*), • **Provide new partners with all meeting notes so they don't have to revisit issues during meeting time and answer all their questions** (II-F1, II-F3, II-F4), (*Meeting notes are published on the project Web Site*), • Use phased approach for adding functionality and attribution and improving accuracy over time (II-F).

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

III. **Risk Category:** ***Ineffective Partnership*** **Cooperation –**Unable to develop collectively approved standards and data model; unable to resolve differences effectively.

Risk #	***Risk Condition***	***Risk Consequence***		***Impact***	***Probability***	***Exposure***	***Time***	***Mitigation Strategy***
A.	Different partners have directly conflicting requirements	1.	The project plan is not developed in a timely manner.	3	2	Mod	P1	• **Use steering committee to reduce the number of participants in the detailed discussion to more quickly resolve conflicts** (III-A), (*Steering Committee formed and active and making decisions*), • **Use negotiation techniques to resolve conflicts** (III-A), (*Project manager is seeking negotiation training*), • Use phased approach to demonstrate commitment to meeting all business needs (III-A1, III-A2, III-A3), • Focus on one group of partners at a time to manage scope (III-A) ? • Develop alternate plans so there is a view of how different priorities affect the project (III-A1), • Allow those with more unique business needs which don't share data or functionalities with common business needs to pay for the additional cost of meeting their unique needs (III-A3, III-A4), • **Look for common functionalities and data needed for all business needs and meet the most common requests in Phase 1** (III-A), (*This strategy is being used based on the Pierce County application for determining business priority, data needs, and data availability*), • Use pilot to evaluate alternate approaches for providing data to resolve conflict (III-A)
		2.	Key partners abandon the effort.	4	2	Mod	P1	
		3.	Functionality agreed to does not meet the needs of partners.	4	2	Mod	P1	
		4.	Partners' data will not work with the framework.	4	2	Mod	P2, P3	
B.	Conflicts exist for security levels needed to meet identified business needs	1.	Some partners refuse to provide data.	4	3	High	P2, P3	• Gather security needs as part of the requirements process and allow some level of security for some data (ex. data for emergency services may be excluded from general access) (III-B1, III-B2, III-B3),
		2.	Data is provided to some who should not have access.	3	2	Mod	P-P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
		3.	Partners have insufficient means of charging for cost of providing data.	2	2	Low	P2, P3	B3), • Develop a security system for updating data and for accessing data which facilitates security needs (III-B1, III-B2), • Provide a "public domain" version and other versions, attribution or layers for some specific users and uses (III-B1, III-B2), • Determine methods of funding which may include providing funds for offices which use data sales as a means of funding GIS programs (III-B3)
C.	Regular communication is inadequate or through mediums not easily accessible to partners	1.	Partners don't participate in project, meetings, or major decisions affecting them.	4	2	Mod	P1, P2, P3	• Develop a complete communication plan with different means of communicating with potential partners (III-C), • **Develop cost, resource and time assessments and publicize them** (III-C1, III-C2), (*Cost and resource estimates have been done using a couple of different assumptions*), • Develop a cost benefit analysis to justify participation and funding (III-C1, III-C2), • Allow sources of funding and resources greater say in the prioritization process (III-C2), • **Continue to document different business needs so the project maintains information about what is needed by participants** (III-C3), (*Business needs definition is an ongoing process, but is now being handled in a less proactive manner*).
		2.	Partners don't provide funding and resources.	4	2	Mod	P1, P2, P3	
		3.	Business needs aren't identified or are identified in a non-timely way.	4	3	High	P2, P3	
D.	Inadequate cooperation across jurisdictional and political boundaries	1.	Data is missing	4	3	High	P3	• **Use the steering committee to minimize the complexity of cooperation and coordination.**(III-D), (*Steering Committee formed and active and making decisions*), • Develop software algorithms to facilitate data integration (III-D3), • Develop agreements and funding that support long term integration (III-D) • Provide option for the "purchase" (RFQ) of data for short-term use (III-D1), • Use alternate sources of data, including orthophotos, to compensate for missing data (III-D1).
		2.	The framework is not used	4	2	Mod	P-P3	
		3.	Data does not "connect"	3	2	Mod	P-P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

WA-Trans Project Risk Assessment
As of March 5, 2003

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
E.	Difficulty reaching consensus regarding technical issues such as: segmentation criteria, data model design, attributes, and LRS measures.	1.	Partners decide not to participate	4	3	High	P1, P2, P3	• **Look at what other states are doing and at other standards (particularly RoadMAT) to get guidance on how to do this** (III-E), (*We have steering committee members on the RoadMAT team, steering committee members on The National Map and Census TIGER/MAF Modernization projects. We also are working with OR through the IRICC*) • **Use lessons learned, standards and data models already implemented from other sources to prevent doing work that has already done by others and to avoid the same difficulties** (III-E), (*Seriously considering Oregon data model and trying to get lessons learned from other framework projects*), • Bring in a professional facilitator/negotiator to assist with the process of determining how to do this (III-E) • Bring in outside expertise to facilitate resolution of technical issues or to develop solutions to technical problems (III-E1, III-E2), • Allow a finite amount of time, add a contingency, and then put the steering committee in a room until it is resolved. Bring the technicians in to provide feedback regarding the feasibility of the solution and refine as needed (III-E2, III-E2).
		2.	Resolving an issue takes more time than anticipated	3	3	Mod	P1, P2, P3	
		3.	Identification of roads is significantly more complicated or costly	4	2	Mod	P2, P3	
F.	Difficulty supporting multiple topology and accuracy needs	1.	Partners decide not to participate	4	2	Mod	P1, P2, P3	• **Identify a minimum accuracy standard for the framework and the minimum accuracy of data currently available for each business need. Don't implement the business needs if the needed accuracy of data doesn't exist until the needed**
		2.	Some business needs are not met	3	4	High	P2, P3, P-P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
		3.	Increased cost and time of developing the framework	3	3	Mod	P1, P2, P3	**needed accuracy of data doesn't exist until the needed accuracy does exist** (III-F2, III-F3), (*minimum accuracy is being identified for data needed, and accuracy for existing data is also being identified*) • Identify data that is missing or less accurate than needed and present that information to the WAGIC and the Geographic Subcommittee to develop momentum and funding for development of such accuracy (III-F). • Predict when the needed accuracy will be available and use a phased approach, setting up phases of improvement to handle upgrading accuracy when the needed data is available (III-F1, III-F2, III-F3).
G.	Difficulty building necessary consensus in a multi-participant setting	1.	Timelines and/or budgets are not met	4	3	High	P1, P2, P3	• Determine individual participants' needs and motivations, find the commonalities, and work to meet those common needs (III-G2, III-G3), • **Use the steering committee to reduce the number of participants in the detailed discussion to more quickly resolve conflicts** (III-G), (*Steering Committee formed and active and making decisions*), • **Use negotiation techniques and, where needed, a professional negotiator to resolve differences** (III-G), (*Project manager is seeking negotiation training*), • Develop an alternate analysis to evaluate how different priorities affect the project (III-G3), • Allow those with more unique business needs, which don't have data or functionalities with common ones, to pay for the additional cost of meeting their unique needs (III-G1, III-G2), • Use pilots to evaluate alternate approaches for providing data to resolve conflict (III-G3).
		2.	Partners decide not to participate	4	3	High	P1, P2, P3	
		3.	Results do not meet partners' business needs	3	3	Mod	P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

WA-Trans Project Risk Assessment
As of March 5, 2003

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
H.	Participation by partners dwindles over time	1.	Resources and funding are not made available for the project	3	3	Mod	P1, P2, P3	• **Provide processes for bringing new steering committee members in as those who can't continue to commit the time leave** (III-H), (*Rules of engagement are documented and in an informal way this process is in place*), • **Develop a comprehensive communication plan which defines keeping partners engaged, including regular communications and interpersonal efforts** (III-H), (*There is not yet a written plan, but there is a project web site that is updated regularly, regularly meetings are held for both partners and the steering committee, all notes are published on the web site and a status report is generally sent out monthly and published on the web site),* • **Have each steering committee member designate an alternate who will serve in their place when necessary** (III-H), (*Several steering committee members do have alternates*), • Use alternate sources of data, including orthophotos, to compensate for missing data (III-H2). • **As people stop participating, make contact with them and find out why. If possible address those issues so that they or someone else within their organizations reengage** (III-H), (*As time permits this is being done*).
		2.	Data needed for the framework is not made available	4	2	Mod	P3	
		3.	Competing efforts to develop a framework are established.	4	2	Mod	P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

IV. **Risk Category:** ***Private-Public Partnership Issues*** – Private companies can provide data to WA-Trans that may be useful to both the company and the governmental agencies using the data. Additionally private companies can volunteer provide services to the project such as programming and data modeling expertise at no cost. How the agreements for use of these data and skills are established is critical for usability.

Risk #	*Risk Condition*	*Risk Consequence*		*Impact*	*Probability*	*Exposure*	*Time*	*Mitigation Strategy*
A.	Conflicts exist for security levels needed to meet identified business needs	1.	Some partners refuse to provide data.	4	3	High	P2, P3	• Gather security needs as part of the requirements process and allow some level of security for some data (ex. data for emergency services may be excluded from general access) (IV-A1, IV-A2, IV-A3), • Develop a security system for updating data and for accessing data which facilitates security needs (IV-A1, IV-A2), • Provide a "public domain" version and other versions, attribution or layers for some specific users and uses (IV-A1, IV-A2), • Determine methods of funding which may include providing funds for offices which use data sales as a means of funding GIS programs (IV-A3)
		2.	Data is provided to some who should not have access.	3	2	Mod	P-P3	
		3.	Partners have insufficient means of charging for cost of providing data.	2	2	Low	P2, P3	
B.	Inability to form partnerships with the private sector	1.	Business needs are not identified	4	3	High	P1, P2, P3	• **Make outreach to logical private partners just as public ones have been included** (IV-B), (*this outreach is beginning soon, the focus being on funding opportunities*), • **Identify partners who could provide data and expertise and those who may be able to use WA-Trans and have funds to contribute** (IV-B2, IV-B3), (*We are currently identifying potential partners who may have interest and may eventually be able to provide funding*), • Use private contacts to find new private contacts and continue to work with them (IV-B), • Determine limitations of public-private partnerships and exploit those where it is logical to do so (IV-B).
		2.	New technologies or methods which could assist are not made available	3	2	Mod	P2, P3	
		3.	Opportunities to leverage data sharing agreements with private partners are not leveraged	3	3	Mod	P2, P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

WA-Trans Project Risk Assessment
As of March 5, 2003

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
C.	Conflict between public disclosure laws and the need to share data, and the need for data some don't want shared.	1.	Opportunities for acquiring data from private organizations (utilities, private forest land owners) are complex or impossible	3	4	High	P2, P3	• Include private data providers in the planning process to assist with developing strategies for handling data and data sharing requests (IVC), • **Get legal opinion from State Attorney General's Office regarding public disclosure laws, limits and data sharing ("licensing") agreements between various levels of government and private organizations and government** (IVC), (*Framework Management Group is going to address this with input from WA-Trans project*), • Set up a process that makes getting data provided by private organizations less difficult and allows for notification of the original data provider so they can get involved (IVC2).
		2.	Public disclosure forces providing data that is to be kept private, except for particular uses (emergency response) to the public.	2	3	Mod	P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

V. **Risk Category:** ***Network Infrastructure and Technology Shortcomings*** **–**The ability to update and retrieve WA-Trans data statewide is a key to the successful long-term usability of the product.

Risk #	***Risk Condition***	***Risk Consequence***		***Imp-act***	***Prob-ability***	***Expo-sure***	***Time***	***Mitigation Strategy***
A.	Band width doesn't support data exchange	1.	Data transfer viewed as "too slow" by framework users (lower satisfaction).	4	3	High	P2, P3	• Pilot testing of the largest most complex data sets to troubleshoot packet size and number of packets transferred (V-A1), • Contract out hosting of WA-Trans, with minimum specifications for speed, bandwidth (V-A1, V-A2).
		2.	Framework is not used.	4	1	Low	P3	
		3.	Negative impact on "hosting organization's" network speed and local applications.	4	2	Mod	P3	
B.	Technology is not available or is too costly to implement to support the vision of WA-Trans, such as: desired attribution, complex functionality, accuracy, access speed, and ease of update.	1.	Framework does not meet business needs and is not used.	4	3	High	P3	• Bring technical experts and companies in to determine feasibility of plans, standards and data models prior to implementation (V-B), • Use pilot projects to determine the feasibility, cost and risk of using new techniques and technologies (V-B), • Compare the cost of using new technology where available, including the learning curve, with the cost of using older technology when making technical decisions (V-B), • Develop a technical team, which reports to the steering committee, to resolve technical and technology issues and advise the steering committee on how best to implement WA Trans (V-B).
		2.	Attempts to implement the framework with less effective technology fail or take extra time, adding significant cost and time.	4	2	Mod	P2, P3	
		3.	WA-Trans fails at implementation.	4	2	Mod	P2, P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

VI. **Risk Category:** ***Compatibility of Data Standards, Jurisdictional Boundaries and Deliverable Timetables*** - Gathering data from a variety of sources and formats, putting it together in a meaningful way and making it available statewide is difficult.

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
A.	Inability to schedule key resources for the project at the needed time	1.	The project schedule is not followed.	3	4	High	P1, P2, P3	• Communicate costs of changes to partners on a regular basis (VI-A1, VI-A2, VI-A4), • Have alternatives planned for each resource (VI-A1, VI-A2, VI-A4), • Use change management process to deal with resource losses (VI-A1, VI-A2), • Develop alternate schedules for various resource combinations (VI-A1, VI-A2, VI-A4), • Balance use of contractors with technicians from partner organizations to retain knowledge that is of long term value to WA-Trans (VI-A3), • Use contractors only for simple, repetitive tasks and partners' staff for key integration decisions and development of processes requiring long term maintenance (VI-A3), • Accept the loss of knowledge and make up for it in the maintenance process (VI-A3), • Contract out maintenance (VI-A3).
		2.	The deliverables are not completed on time.	3	3	Mod	P1, P2, P3	
		3.	Contractors work the project and key knowledge is lost.	2	2	Low	P3	
		4.	Knowledge about data is not available, thus tasks and mistakes consume time inefficiently.	2	3	Mod	P2, P3	
B.	The business needs identified by funding organizations are too complex for time available to develop	1.	Funding opportunities are lost.	4	3	High	P3	• Provide option for the "purchase" (RFQ) of data for short-term use (VI-B1, VI-B2), • Perform continuous risk management, including assessing the risks of each requirement to meet a business need (VI-B),
		2.	Competing base-maps/frameworks are established	4	2	Mod	P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

Risk #	*Risk Condition*	*Risk Consequence*		*Imp -act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
	available to develop the first release	3.	The framework project "fails" when it tries to meet a need that is too high- risk for first release.	4	2	Mod	P2, P3	• Add a contingency factor in the budget and schedule for risk assessed on complex business needs (VI-B), • Use a carefully constructed RFP to contract out the complex portions of the project and share the risk with the contractor (VI-B), • Provide a release of WA-Trans that is a starting point for funding organizations that they can adapt and refine to meet their specific needs (VI-B).
C.	Development of the base-map with attribution is too slow for some identified business needs	1.	Funding/resource opportunities are lost.	4	4	High	P1, P2, P3	• Attach a funding requirement to meet urgent needs (VI-C), • Provide option for the "purchase" (RFQ) of data for short-term use (VI-C2), • Use pilot to show value of providing data to WA-Trans (VI-C3), • Consider a scaled down version for a first release, with a release schedule for addition attribution (VI-C). • Determine if there are regional prioritizations and do those first (VI-C).
		2.	Competing base-maps/frameworks are established.	4	2	Mod	P3	
		3.	Some potential partners' data is not available.	4	3	High	P3	
D.	Partners don't have funds to provide data in a format needed for the transportation framework.	1.	Some partners' data is not available for the framework.	4	2	Mod	P2, P3	• **Include the need for funding activities by data providers in funding proposals and requests** (VI-D), (*One of the estimates used for a grant request included some money for these activities*), • Develop translators to convert the data into the framework format for WA-Trans, (VI-D1, VI-D2) • Provide some sort of grant program so those with data and funding needs can get a grant to assist with this activity (VI-D1, VI-D2) • Provide WA-Trans resources (staff time, etc.) to format and integrate the data for the data provider. (VI-D1, VI-D2), • Use the pilot to track estimated costs and time for individual providers to convert their data and use this information in CBAs and when seeking funding (VI-D1, VI-D2, VI-D4).
		2.	Partners don't participate in the project.	4	2	Mod	P2, P3	
		3.	Framework is not used because it is not the "best available" data.	4	2	Mod	P-P3	
		4.	Higher costs to convert data to the framework	3	4	High	P2, P3	
E.	Expectation that the framework will	1.	Partners decide not to participate	4	2	Mod	P1, P2, P3	• **Prioritize business needs and determine a plan for meeting all reasonable business needs, which facilitates specific**

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

Risk #	*Risk Condition*	*Risk Consequence*		*Imp -act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
	interface with specialized applications with proprietary formats	2.	Some business needs are not met	3	3	Mod	P1, P2, P3	**reasonable business needs, which facilitates specific application needs over time** (VI-E), (*Business needs are being prioritized and a plan will be underway upon completion*), • Identify the most commonly needed data elements, a standard which is the simplest way of storing the data, and then provide translators to the database for easy data exchange (VI-E2, VI-E3), • Designate a clear scope which defines what WA-Trans is and is not so it is very clear which business needs will and will not be met (VI-E2), • Use a phased implementation to include more data formats and specialized needs in later versions of implementation, thus not being exclusionary (VI-E3).
		3.	Costs of developing some applications using the framework are more expensive	3	2	Mod	P-P3	
		4.	The framework is not used	4	2	Mod	P-P3	
F.	Partners' conditions and expectations change over time.	1.	Partners stop participating	4	2	Mod	P1, P2, P3	• Clearly define the scope of each implementation phase and use change management to facilitate when that scope needs to change (VI-F2), • **Maintain the business needs document over time so changing business climates are being documented** (VI-F1, VI-F3), (*Business needs definition is an ongoing process, but is now being handled in a less proactive manner*) • Develop and document a long-term maintenance plan, which includes how continuing improvements can be made to WA-Trans (VI-F1, VI-F3).
		2.	The scope of the project changes	4	2	Mod	P2, P3	
		3.	Partners' business needs are not met	3	3	Mod	P3	
G.	Concern of partners regarding control and time issues of shared resources and funding	1.	Resources and funding are not made available for the project	3	3	Mod	P1, P2, P3	• Develop and document comprehensive roles and responsibilities and associated work plan for each shared resource which defines control, coordination and work tasks and deliverables (VI-G1, VI-G2),
		2.	Constraints are placed upon use of resources or funds	2	3	Mod	P1, P2, P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

WA-Trans Project Risk Assessment
As of March 5, 2003

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
		3.	Project implementation takes longer than planned	3	3	Mod	P1, P2, P3	G2), • Document each change of resources and what the cost is to the project in terms of time, money and expertise ,in an effort to illustrate the need for resource commitment (VI-G2, VI-G3), • Develop plans with and without resources sharing to show costs and time associated with each; where resources can't be provided seek funding to make up the difference (VI-G).
H.	Competing base-maps/frameworks are established.	1.	Other project(s) competes for the same funds as WA-Trans	4	4	High	P1, P2, P3	• Look for opportunities to share efforts, resources and project scopes wherever possible (VI-H).

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

VII. **Risk Category***: **Facilitating Development of the Most Useful Applications*** – WA-Trans doesn't develop applications, but it must facilitate the development of them. If the needed data isn't available through WA-Trans those applications can't be developed or may be developed elsewhere in conflict with WA Trans.

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
A.	Inability to schedule key resources for the project at the needed time	1.	The project schedule is not followed.	3	4	High	P1, P2, P3	• Communicate costs of changes to partners on a regular basis (VII-A1, VII-A2, VII-A4), • Have alternatives planned for each resource (VII-A1, VII-A2, VII-A4), • Use change management process to deal with resource losses (VII-A1, VII-A2), • Develop alternate schedules for various resource combinations (VII-A1, VII-A2, VII-A4), • Balance use of contractors with technicians from partner organizations to retain knowledge that is of long term value to WA-Trans (VII-A3), • Use contractors only for simple, repetitive tasks and partners' staff for key integration decisions and development of processes requiring long term maintenance (VII-A3), • Accept the loss of knowledge and make up for it in the maintenance process (VII-A3), • Contract out maintenance (VII-A3).
		2.	The deliverables are not completed on time.	3	3	Mod	P1, P2, P3	
		3.	Contractors work the project and key knowledge is lost.	2	2	Low	P3	
		4.	Knowledge about data is not available, thus tasks and mistakes consume time inefficiently.	2	3	Mod	P2, P3	
B.	The business needs identified by funding organizations are too complex for time available to develop	1.	Funding opportunities are lost.	4	3	High	P3	• Provide option for the "purchase" (RFQ) of data for short-term use (VII-B1, VII-B2), • Perform continuous risk management, including assessing the risks of each requirement to meet a business need (VII-B),
		2.	Competing base-maps/frameworks are established	4	2	Mod	P3	

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

Risk #	*Risk Condition*	*Risk Consequence*		*Imp-act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
	available to develop the first release	3.	The framework project "fails" when it tries to meet a need that is too high- risk for first release.	4	2	Mod	P2, P3	• Add a contingency factor in the budget and schedule for risk assessed on complex business needs (VII-B), • Use a carefully constructed RFP to contract out the complex portions of the project and share the risk with the contractor (VII-B), • Provide a release of WA-Trans that is a starting point for funding organizations that they can adapt and refine to meet their specific needs (VII-B).
C.	Pilot projects are completed before a detailed business needs assessment is completed	1.	Pilots are deemed not useful because they don't represent needs and don't meet business requirements.	3	2	Mod	P2	• **Begin pilots after the business needs assessment and requirements analysis are completed** (VII-C2), (*The current schedule has pilots directly following needs assessment, requirements analysis, and development of the data model*), • Perform risk management on pilots done prior to completion of business needs assessment and requirements analysis to determine and document the likelihood that the pilots will represent the final version of WA-Trans (VII-C1), • Perform change management on any scope changes that includes the costs of pilots, which are different, and results that must be negated (VII-C1).
		2.	Pilots compete with gathering business needs for scarce resources, thus having less resources than are needed to do both	2	2	Low	P1, P2	
D.	Business needs are not identified during the business needs assessment effort	1.	Scope changes occur later in the process (costing more money) because new needs are identified.	2	3	Mod	P2, P3	• **Make an effort to identify as many players as possible as early as possible to get complete needs collected** (VII-D1), (*This has been done. Some groups have not had much contact made with them in the interests of prioritizing limited time of the project*

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

Risk #	*Risk Condition*	*Risk Consequence*		*Imp -act*	*Prob-ability*	*Expo-sure*	*Time*	*Mitigation Strategy*
		2.	Some partners don't participate because they don't think WA Trans will meet "their" business needs.	3	3	Mod	P2, P3	*them in the interests of prioritizing limited time of the project manager, but they have been identified*), • Develop change management process for handling scope changes once business requirements and prioritization are complete (VII-D1), • Use phased approach for adding functionality and attribution and improving accuracy over time (VII-D2), • **Continue to document different business needs so the project maintains information about what is needed by participants** (VII-D2), (*Business needs definition is an ongoing process, but is now being handled in a less proactive manner*).
E.	Expectation that the framework will interface with specialized applications with proprietary formats	1.	Partners decide not to participate	4	2	Mod	P1, P2, P3	• **Prioritize business needs and determine a plan for meeting all reasonable business needs which facilitates specific application needs over time** (VII-E), (*Business needs are being prioritized and a plan will be underway upon completion*), • Identify the most commonly needed data elements, a standard which is the simplest way of storing the data, and then provide translators to the database for easy data exchange (VII-E2, VII-E3), • Designate a clear scope which defines what WA-Trans is and is not so it is very clear which business needs will and will not be met (VII-E2), • Use a phased implementation to include translation routines and data exchange formats and specialized needs in later versions of implementation thus not being exclusionary. These will facilitate a standard look and feel to WA-Trans across the state without requiring data be the same in the providers GIS. (VII-E3
		2.	Some business needs are not met	3	3	Mod	P1, P2, P3	
		3.	Costs of developing some applications using the framework are more expensive	3	2	Mod	P-P3	
		4.	The framework is not used	4	2	Mod	P-P3	

[i] Software Engineering Institute, (1996), Continuous Risk Management Guidebook, Carnegie Mellon University pg.41-45.

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation

[ii] Dueker, K. and Bender, P. (2001), "White Paper on Issues and Strategies for Building a State Transportation Framework", http://www.wsdot.wa.gov/mapsdata/transframework/Trans%20White%20Paper%20Final.pdf
[iii] Dueker, K. and Bender, P. (2001), "White Paper on Issues and Strategies for Building a State Transportation Framework", http://www.wsdot.wa.gov/mapsdata/transframework/Trans%20White%20Paper%20Final.pdf

Legend

Impact Rating: *1* – Negligible, *2* – Marginal, *3* – Critical, *4* – Catastrophic
Probability Rating: *1* – Impossible, *2* – Improbable, *3* – Probable, *4* – Frequent
Risk Exposure Level: None, Low, Moderate (Mod), High
Time: *P1* – Phase 1, *P2* – Phase 2, *P3* – Phase 3, *P-P3* – Post Phase 3

Bold Mitigation Strategy - Progress
Italicized Comments – Status of Mitigation